

**Remarks: Please Read the question more than once to fully understand it before you start solving, Do not forget to make verification and validation for your answers.**

**Problem number (1) (10 Marks)**

- a) Given the following project, perform cost benefit analysis in the second page attached to this. Add the second page to the solution pages of the exam. One-time cost = 45,000 LE, recurring cost = 20,000 LE and the recurring benefits = 30,000 LE. Assume discount rate = 0.12 and the number of years = 4. What are the other feasibility studies you will need? List them all and discuss only two of them. *VPV PV* (6 marks)
- b) Compare evolutionary and throw-away prototyping. (2 marks)
- c) Describe the Gantt chart using an example. (2 marks)

**Problem number (2) (10 Marks)**

- a) If you are the information systems manager of Tanta university and you are requested by the university president to build an application for faculty staff's salaries. Suggest five functions and draw the conceptual model for them. Then describe them in details. (5 marks)
- b) How will you collect information for the above application of Tanta's faculty staff salaries? (3 marks)
- c) How can you verify the software package you are about to buy? (2 marks)

Good Luck all

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**Question (1) (Total 10 Marks)**

1- Choose the correct answer:

(6 Marks)

- a) What were the two main streams of research that led to the evolution and development of the concept of Decision Support Systems?
- Theoretical studies of organizational decision making and technical work on interactive computer systems.
  - Theoretical studies of organizational behaviour and technical work on relational data bases.
  - Empirical studies of graphical displays and technical work on artificial intelligence.
- b) What is the most important component of a Decision Support System?
- Architecture and network design.
  - Database.
  - Mathematical models and analytical tools.
  - User interface.
- c) What category of software technology enables analysts, managers and executives to gain insight into data through fast, consistent, interactive access to a wide variety of possible views of information that has been transformed from raw data to reflect the real dimensionality of the enterprise as understood by the user.
- Data Warehouse software
  - On-line Analytical Processing (OLAP) software.
  - On-line Transaction Processing (OLTP) software.

2- Define a system, its structure, types and its environment with examples. (2 Marks)

3- List and briefly describe the major types of systems in organization. (2 Marks)

**Question (2) (Total 10 Marks)**

- 1- What are the major components of DSS and briefly define each of them? (2 Marks)
- 2- You are about to decide whether to drive to work via the freeway or via the parallel road. There is no immediate traffic information. Is your decision under certainty? risk? uncertainty? Why? (2 Marks)
- 3- The use of scenarios is becoming popular in computerized decision making. Why? What are the most interesting scenarios? (2 Marks)
- 4- Galaxy Company manufactures two toy doll models: Space Ray and Zapper; where resources are limited to 1000 pounds of special plastic and 160 hours of production time per month.

- Marketing requirement
  - Total production cannot exceed 800 dozens.
  - Number of dozens of Space Rays cannot exceed number of dozens of Zappers by more than 250.
- Technological input
  - Space Rays requires 2 pounds of plastic and 3 minutes of labor per dozen.
  - Zappers requires 1 pound of plastic and 4 minutes of labor per dozen.

The current production plan calls for:

- Producing as much as possible of the more profitable product, Space Ray (\$8 profit per dozen).
- Use resources left over to produce Zappers (\$5 profit per dozen), while remaining within the marketing guidelines.

Management is seeking a production schedule that will increase the company's weekly profit

Construct a linear programming model for this problem.

(4 Marks)

**With my best wishes**